

Appendix F

Results from Side Cases

Table F1. Key Results for Residential Sector Technology Cases

Energy Consumption	1998	2005				2010			
		2000 Tech.	Reference Case	High Technology	Best Available Tech.	2000 Tech.	Reference Case	High Technology	Best Available Tech.
Energy Consumption (quadrillion Btu)									
Distillate Fuel	0.84	0.80	0.79	0.75	0.72	0.76	0.73	0.68	0.63
Kerosene	0.10	0.09	0.09	0.09	0.08	0.09	0.09	0.08	0.07
Liquefied Petroleum Gas	0.41	0.45	0.44	0.43	0.39	0.45	0.43	0.42	0.39
Petroleum Subtotal	1.36	1.34	1.31	1.27	1.20	1.30	1.25	1.18	1.09
Natural Gas	4.61	5.31	5.22	5.03	4.86	5.62	5.46	5.06	4.81
Coal	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05
Renewable Energy	0.38	0.44	0.44	0.43	0.44	0.45	0.44	0.43	0.43
Electricity	3.83	4.43	4.37	4.30	4.07	4.83	4.70	4.57	4.12
Delivered Energy	10.24	11.58	11.40	11.08	10.62	12.26	11.91	11.29	10.52
Electricity Related Losses	8.53	9.55	9.42	9.27	8.78	10.02	9.76	9.47	8.55
Total	18.77	21.12	20.82	20.35	19.40	22.27	21.66	20.76	19.06
Delivered Energy Consumption per Household (million Btu per year)	99.54	104.03	102.43	99.58	95.44	104.66	101.65	96.40	89.78

Table F2. Key Results for Commercial Sector Technology Cases

Energy Consumption	1998	2005				2010			
		2000 Tech.	Reference Case	High Technology	Best Available Tech.	2000 Tech.	Reference Case	High Technology	Best Available Tech.
Energy Consumption (quadrillion Btu)									
Distillate Fuel	0.38	0.38	0.38	0.38	0.37	0.38	0.38	0.37	0.36
Residual Fuel	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Kerosene	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Liquid Petroleum Gas	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Motor Gasoline	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Petroleum Subtotal	0.61	0.62	0.62	0.62	0.61	0.62	0.62	0.62	0.61
Natural Gas	3.11	3.44	3.43	3.42	3.34	3.60	3.58	3.55	3.43
Coal	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Renewable Energy	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Electricity	3.56	4.07	4.06	4.02	3.79	4.40	4.36	4.27	3.91
Delivered Energy	7.46	8.31	8.28	8.23	7.91	8.80	8.74	8.62	8.13
Electricity Related Losses	7.93	8.78	8.75	8.66	8.17	9.12	9.04	8.87	8.11
Total	15.38	17.09	17.03	16.89	16.08	17.92	17.78	17.49	16.24
Delivered Energy Consumption per Square Foot (thousand Btu per year)	121.74	123.79	123.40	122.66	117.83	124.17	123.33	121.68	114.73

Results from Side Cases

Table F1. Key Results for Residential Sector Technology Cases (Continued)

2015				2020				Annual Growth 1998-2020			
2000 Tech.	Reference Case	High Technology	Best Available Tech.	2000 Tech.	Reference Case	High Technology	Best Available Tech.	2000 Tech.	Reference Case	High Technology	Best Available Tech.
0.73	0.69	0.62	0.56	0.71	0.65	0.57	0.50	-0.8%	-1.2%	-1.8%	-2.3%
0.09	0.09	0.08	0.07	0.09	0.09	0.08	0.07	-0.7%	-0.9%	-1.2%	-1.9%
0.45	0.42	0.40	0.37	0.45	0.41	0.39	0.36	0.4%	0.0%	-0.2%	-0.6%
1.27	1.19	1.10	1.00	1.24	1.15	1.04	0.93	-0.4%	-0.8%	-1.2%	-1.7%
5.90	5.65	5.05	4.69	6.22	5.86	5.04	4.39	1.4%	1.1%	0.4%	-0.2%
0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-0.4%	-0.4%	-0.4%	-0.4%
0.46	0.45	0.43	0.43	0.47	0.45	0.43	0.44	0.9%	0.8%	0.5%	0.6%
5.20	5.00	4.78	4.18	5.58	5.30	4.99	4.33	1.7%	1.5%	1.2%	0.5%
12.88	12.34	11.42	10.36	13.56	12.81	11.56	10.15	1.3%	1.0%	0.6%	-0.0%
10.36	9.96	9.54	8.34	10.71	10.18	9.59	8.31	1.0%	0.8%	0.5%	-0.1%
23.24	22.30	20.96	18.70	24.27	22.99	21.16	18.45	1.2%	0.9%	0.5%	-0.1%
105.12	100.69	93.18	84.57	106.28	100.44	90.61	79.51	0.3%	0.0%	-0.4%	-1.0%

Tech. = Technology.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports. Side cases were run without the fully integrated modeling system, so not all feedbacks are captured. The reference case ratio of electricity losses to electricity use was used to compute electricity losses for the technology cases.

Source: Energy Information Administration, AEO2000 National Energy Modeling System, runs RSFRZN.D100499A, AEO2K.D100199A, RSHIGH.D100499B, and RSBEST.D100499A.

Table F2. Key Results for Commercial Sector Technology Cases (Continued)

2015				2020				Annual Growth 1998-2020			
2000 Tech.	Reference Case	High Technology	Best Available Tech.	2000 Tech.	Reference Case	High Technology	Best Available Tech.	2000 Tech.	Reference Case	High Technology	Best Available Tech.
0.37	0.37	0.36	0.35	0.36	0.36	0.35	0.34	-0.2%	-0.2%	-0.3%	-0.5%
0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	-0.2%	-0.2%	-0.2%	-0.2%
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-0.1%	-0.1%	-0.1%	-0.1%
0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.9%	0.9%	0.9%	0.9%
0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-0.3%	-0.3%	-0.3%	-0.3%
0.62	0.62	0.61	0.60	0.61	0.60	0.60	0.59	-0.0%	-0.1%	-0.1%	-0.2%
3.73	3.71	3.68	3.54	3.77	3.75	3.72	3.57	0.9%	0.9%	0.8%	0.6%
0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.9%	0.9%	0.9%	0.9%
0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	N/A	0.0%	0.0%	0.0%
4.66	4.58	4.45	4.01	4.79	4.68	4.51	4.04	1.4%	1.2%	1.1%	0.6%
9.19	9.10	8.93	8.33	9.35	9.22	9.01	8.38	1.0%	1.0%	0.9%	0.5%
9.28	9.14	8.88	8.01	9.20	8.98	8.66	7.76	0.7%	0.6%	0.4%	-0.1%
18.47	18.24	17.81	16.34	18.55	18.20	17.67	16.14	0.9%	0.8%	0.6%	0.2%
125.35	124.09	121.74	113.67	126.62	124.85	122.04	113.52	0.2%	0.1%	0.0%	-0.3%

Tech. = Technology.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports. Side cases were run without the fully integrated modeling system, so not all feedbacks are captured. The reference case ratio of electricity losses to electricity use was used to compute electricity losses for the technology cases.

Source: Energy Information Administration, AEO2000 National Energy Modeling System, runs COMFZN.D100499B, AEO2K.D100199A, COMHTEK.D100499A, and COMBTEK.D100499A.

Results from Side Cases

Table F3. Key Results for Industrial Technology Cases

Consumption	1998	2010			2015			2020		
		2000 Technology	Reference Case	High Technology	2000 Technology	Reference Case	High Technology	2000 Technology	Reference Case	High Technology
Energy Consumption (quadrillion Btu)										
Distillate Fuel	1.08	1.30	1.29	1.28	1.39	1.38	1.36	1.47	1.46	1.42
Liquefied Petroleum Gas	2.06	2.41	2.40	2.36	2.54	2.53	2.46	2.65	2.64	2.54
Petrochemical Feedstocks	1.39	1.58	1.58	1.55	1.67	1.66	1.62	1.74	1.73	1.67
Residual Fuel	0.27	0.31	0.29	0.28	0.32	0.30	0.27	0.34	0.31	0.27
Motor Gasoline	0.21	0.25	0.25	0.24	0.27	0.26	0.26	0.28	0.28	0.28
Other Petroleum	4.11	4.76	4.72	4.69	4.95	4.91	4.85	5.08	5.03	4.95
Petroleum Subtotal	9.12	10.60	10.53	10.40	11.14	11.04	10.82	11.57	11.45	11.12
Natural Gas	9.75	11.26	10.96	10.85	11.94	11.53	11.29	12.46	11.99	11.64
Metallurgical Coal ¹	0.82	0.88	0.83	0.77	0.88	0.82	0.72	0.88	0.80	0.67
Steam Coal	1.54	1.66	1.59	1.39	1.70	1.61	1.39	1.74	1.63	1.39
Coal Subtotal	2.36	2.54	2.42	2.17	2.58	2.42	2.11	2.62	2.43	2.06
Renewable Energy	2.08	2.36	2.40	2.46	2.46	2.53	2.62	2.55	2.63	2.75
Electricity	3.57	4.29	4.15	4.00	4.60	4.45	4.22	4.87	4.70	4.40
Delivered Energy	26.89	31.05	30.46	29.88	32.72	31.96	31.05	34.07	33.20	31.97
Electricity Related Losses	7.95	8.90	8.61	8.29	9.18	8.87	8.42	9.36	9.03	8.46
Total	34.84	39.94	39.08	38.17	41.91	40.83	39.47	43.43	42.23	40.43
Delivered Energy Use per Dollar of Output (thousand Btu per 1987 dollar)										
	6.52	5.95	5.84	5.73	5.71	5.58	5.42	5.52	5.38	5.18

¹Includes net coal coke imports.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports. Side cases were run without the fully integrated modeling system, so not all potential feedbacks were captured. The reference case ratio of electricity losses to electricity use was used to compute electricity losses for the technology cases.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs INDFRZN2K.D100599A, AEO2K.D100199A, and INDHIGH2K.D100599A.

Results from Side Cases

Table F4. Key Results for Transportation Technology Cases

Consumption and Indicators	1998	2010			2015			2020		
		2000 Tech.	Reference Case	High Tech.	2000 Tech.	Reference Case	High Tech.	2000 Tech.	Reference Case	High Tech.
Energy Consumption (quadrillion Btu)										
Distillate Fuel	4.95	5.96	5.76	5.57	6.45	6.02	5.64	6.91	6.22	5.69
Jet Fuel	3.36	4.93	4.85	4.83	5.72	5.55	5.40	6.55	6.24	5.88
Motor Gasoline	15.59	19.52	19.12	17.58	21.08	20.30	17.81	22.52	21.35	18.03
Residual Fuel	0.65	0.94	0.92	0.92	1.07	1.05	1.05	1.20	1.18	1.17
Liquid Petroleum Gas	0.05	0.11	0.11	0.13	0.12	0.12	0.18	0.13	0.13	0.21
Other Petroleum	0.30	0.34	0.34	0.34	0.36	0.36	0.36	0.37	0.37	0.37
Petroleum Subtotal	24.89	31.79	31.10	29.37	34.80	33.39	30.44	37.69	35.49	31.36
Pipeline Fuel Natural Gas	0.75	0.87	0.87	0.87	0.95	0.95	0.95	0.99	0.99	0.99
Compressed Natural Gas	0.02	0.22	0.23	0.24	0.27	0.29	0.31	0.30	0.33	0.36
Renewables (E85)	0.00	0.06	0.06	0.08	0.08	0.07	0.10	0.09	0.08	0.12
Methanol (M85)	0.01	0.11	0.10	0.13	0.15	0.13	0.16	0.17	0.15	0.18
Liquid Hydrogen	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.03
Electricity	0.07	0.13	0.12	0.10	0.17	0.15	0.11	0.19	0.17	0.12
Delivered Energy	25.74	33.18	32.48	30.79	36.41	34.99	32.08	39.43	37.20	33.15
Electricity Related Losses	0.15	0.28	0.26	0.20	0.33	0.30	0.22	0.36	0.32	0.22
Total	25.89	33.45	32.74	30.99	36.75	35.28	32.30	39.80	37.53	33.38
Energy Efficiency Indicators										
New Light-Duty Vehicle (miles per gallon) ¹	24.2	24.2	25.6	30.5	24.2	26.2	32.3	24.2	26.5	33.3
New Car (miles per gallon) ¹	28.2	29.1	31.4	36.3	29.2	31.7	38.1	29.2	31.6	39.0
New Light Truck (miles per gallon) ¹	20.6	20.7	21.6	26.4	20.7	22.3	28.1	20.7	22.8	29.1
Light-Duty Fleet (miles per gallon) ²	20.7	20.0	20.4	22.2	19.7	20.5	23.3	19.4	20.6	24.3
New Commercial Light Truck (MPG) ³	20.4	20.2	21.0	25.4	20.1	21.6	27.0	20.1	22.1	28.0
Stock Commercial Light Truck (MPG) ³	14.7	15.6	15.8	17.1	15.8	16.2	18.2	15.8	16.5	19.2
Aircraft Efficiency (seat miles per gallon)	51.4	55.4	56.4	56.7	56.5	58.4	60.2	57.4	60.5	64.5
Freight Truck Efficiency (miles per gallon)	5.6	5.9	6.0	6.2	5.9	6.2	6.6	6.0	6.4	7.0
Rail Efficiency (ton miles per thousand Btu)	2.7	2.8	3.1	3.3	2.8	3.2	3.5	2.8	3.4	3.8
Domestic Shipping Efficiency (ton miles per thousand Btu)	2.4	2.5	2.8	2.9	2.5	3.0	3.2	2.5	3.2	3.4
Light-Duty Vehicles Less Than 8500 Pounds (vehicle miles traveled)	2403	3046	3048	3057	3278	3282	3296	3491	3498	3516

¹Environmental Protection Agency rated miles per gallon.

²Combined car and light truck "on-the-road" estimate.

³Commercial trucks 8,500 to 10,000 pounds.

Tech = Technology.

Btu = British thermal unit.

MPG = Miles per gallon.

Note: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports. Side cases were run without the fully integrated modeling system, so not all potential feedbacks were captured. The reference case ratio of electricity losses to electricity use was used to compute electricity losses for the technology cases.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs FROZEN.D100499A, AEO2K.D100199A, and HTECH.D100599F.

Results from Side Cases

Table F5. Key Results for Integrated Technology Cases

Consumption and Emissions	1998	2010			2015			2020		
		2000 Technology	Reference Case	High Technology	2000 Technology	Reference Case	High Technology	2000 Technology	Reference Case	High Technology
Consumption by Sector (quadrillion Btu)										
Residential	18.8	22.3	21.7	20.8	23.2	22.3	21.1	24.3	23.0	21.1
Commercial	15.4	17.9	17.8	17.6	18.4	18.2	18.0	18.5	18.2	17.7
Industrial	34.8	40.1	39.1	37.9	42.1	40.8	39.3	43.7	42.2	40.1
Transportation	25.9	33.5	32.7	31.1	36.8	35.3	32.5	39.8	37.5	33.8
Total	94.9	113.8	111.3	107.4	120.6	116.7	111.0	126.3	120.9	112.6
Consumption by Fuel (quadrillion Btu)										
Petroleum Products	37.2	45.0	44.0	41.9	48.5	46.6	43.3	51.7	49.1	44.7
Natural Gas	22.0	28.9	27.7	26.5	32.1	30.7	28.8	33.6	32.4	30.0
Coal	21.5	25.4	25.1	24.3	26.4	25.8	25.0	27.8	26.6	24.9
Nuclear Power	7.2	6.7	6.7	6.7	5.4	5.5	5.0	4.7	4.6	3.8
Renewable Energy	6.7	7.4	7.4	7.6	7.8	7.7	8.4	8.2	8.0	8.8
Other	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4
Total	94.9	113.8	111.3	107.4	120.6	116.7	111.0	126.3	120.9	112.6
Energy Intensity (thousand Btu per 1992 dollar of GDP) ..										
	12.6	11.3	11.1	10.7	10.8	10.5	10.0	10.4	9.9	9.2
Carbon Emissions by Sector (million metric tons)										
Residential	283.5	353.6	343.7	328.4	376.7	361.0	340.7	400.8	377.7	344.1
Commercial	237.5	290.7	288.8	283.4	306.4	303.0	297.6	313.7	307.3	295.9
Industrial	476.8	552.6	534.4	511.7	585.6	561.8	532.5	611.8	584.1	542.6
Transportation	487.5	634.7	619.7	587.9	696.8	667.5	613.7	753.4	710.0	637.5
Total	1,485.4	1,831.6	1,786.6	1,711.4	1,965.5	1,893.4	1,784.4	2,079.7	1,979.2	1,820.2
Carbon Emissions by End-Use Fuel (million metric tons)										
Petroleum	611.9	753.5	737.1	702.6	814.4	783.5	726.6	870.8	825.6	749.5
Natural Gas	262.0	307.9	301.3	295.0	324.7	316.1	305.7	337.1	327.4	313.4
Coal	61.7	68.4	65.4	58.9	69.7	65.5	57.4	70.7	65.6	56.1
Other	0.0	1.9	1.8	2.1	2.6	2.3	2.6	3.1	2.7	3.0
Electricity	549.8	699.9	681.0	652.9	754.1	725.9	692.1	798.1	757.8	698.2
Total	1,485.4	1,831.6	1,786.6	1,711.4	1,965.5	1,893.4	1,784.4	2,079.7	1,979.2	1,820.2
Carbon Emissions by Electric Generators (million metric tons)										
Petroleum	24.8	13.7	10.2	6.1	14.3	8.6	3.8	14.1	7.7	3.0
Natural Gas	47.8	105.7	95.0	84.5	134.6	123.1	105.9	144.7	136.2	115.7
Coal	477.3	580.6	575.8	562.3	605.3	594.2	582.4	639.3	613.9	579.5
Total	549.8	699.9	681.0	652.9	754.1	725.9	692.1	798.1	757.8	698.2
Carbon Emissions by Primary Fuel (million metric tons)										
Petroleum	636.7	767.2	747.3	708.7	828.6	792.1	730.4	884.8	833.3	752.5
Natural Gas	309.8	413.6	396.3	379.4	459.2	439.3	411.6	481.8	463.7	429.1
Coal	538.9	648.9	641.2	621.2	675.0	659.7	639.7	710.0	679.5	635.5
Other	0.0	1.9	1.8	2.1	2.6	2.3	2.6	3.1	2.7	3.0
Total	1,485.4	1,831.6	1,786.6	1,711.4	1,965.5	1,893.4	1,784.4	2,079.7	1,979.2	1,820.2

Btu = British thermal unit.

GDP = Gross domestic product.

Note: Includes end-use, fossil electricity, and renewable technology assumptions. Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs LTRK1EN.D100799A, AEO2K.D100199A, and HTRK1EN.D100799A.

Results from Side Cases

Table F6. Key Results for Buildings Efficiency Standards Cases

Energy Consumption	1998	2010			2015			2020		
		Reference Case	10% Standards Case	20% Standards Case	Reference Case	10% Standards Case	20% Standards Case	Reference Case	10% Standards Case	20% Standards Case
Energy Consumption (quadrillion Btu)										
Distillate Fuel	1.22	1.10	1.10	1.10	1.05	1.05	1.05	1.01	1.00	1.00
Kerosene	0.14	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Liquefied Petroleum Gas	0.48	0.52	0.52	0.52	0.51	0.50	0.50	0.50	0.49	0.48
Petroleum Subtotal ¹	1.97	1.87	1.87	1.87	1.81	1.80	1.80	1.75	1.73	1.73
Natural Gas	7.72	9.04	8.98	8.97	9.36	9.21	9.15	9.61	9.36	9.26
Coal	0.14	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Renewable Energy	0.46	0.52	0.52	0.52	0.52	0.52	0.52	0.53	0.53	0.53
Electricity	7.40	9.06	8.92	8.92	9.58	9.33	9.33	9.97	9.65	9.63
Delivered Energy¹	17.69	20.65	20.44	20.44	21.44	21.03	20.96	22.03	21.43	21.31
Electricity Related Losses	16.46	18.80	18.50	18.51	19.11	18.61	18.60	19.16	18.54	18.50
Total¹	34.15	39.44	38.95	38.94	40.54	39.64	39.56	41.19	39.97	39.81
Buildings Carbon Emissions (million metric tons)										
	521.00	632.49	624.35	624.30	664.00	648.86	647.74	685.06	664.63	661.97

¹Includes small amounts of residual fuel and motor gasoline consumption in the commercial sector.

Btu = British thermal unit.

Note: Side cases were run without the fully integrated modeling system, so not all feedbacks are captured. The reference case ratio of electricity losses to electricity use was used to compute electricity losses for the efficiency standards cases. Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2000 National Energy Modeling System, runs AEO2K.D100199A, RSSTD10.D100599A, COMSTND.D100599C, RSSTD20.D100599A, and COMSTND.D100599E.

Results from Side Cases

Table F7. Key Results for Nuclear Generation Cases
(Gigawatts, Unless Otherwise Noted)

Net Summer Capability, Generation, Emissions, and Fuel Prices	1998	Projections									
		2010			2015			2020			
		Low Nuclear	Reference Case	High Nuclear	Low Nuclear	Reference Case	High Nuclear	Low Nuclear	Reference Case	High Nuclear	
Electric Generators											
Capability											
Coal Steam	305.2	303.6	301.7	301.1	310.3	306.8	305.3	322.2	317.0	313.6	
Other Fossil Steam	138.2	119.8	119.5	119.8	114.1	117.1	115.4	106.6	109.9	113.0	
Combined Cycle	19.5	100.5	93.1	92.5	135.9	124.7	120.3	166.7	154.6	145.6	
Combustion Turbine/Diesel	73.2	154.7	153.5	151.2	180.5	180.4	176.6	200.6	202.3	199.4	
Nuclear Power	97.1	72.5	84.1	90.2	53.5	67.4	79.7	43.7	57.0	71.1	
Pumped Storage	19.9	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Fuel Cells	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	
Renewable Sources	87.2	93.8	93.8	93.8	95.3	95.3	95.3	96.7	96.7	96.6	
Total	740.2	865.0	865.7	868.8	909.8	911.8	912.8	956.6	957.5	959.5	
Cumulative Planned Additions	0.0	11.1	11.1	11.1	12.0	12.0	12.0	12.2	12.2	12.2	
Cumulative Unplanned Additions											
Coal Steam	0.0	4.3	3.8	3.4	11.7	9.5	8.2	25.0	21.0	17.8	
Other Fossil Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Combined Cycle	0.0	76.4	68.9	68.4	111.8	100.6	96.2	142.6	130.5	121.5	
Combustion Turbine/Diesel	0.0	82.4	81.9	79.4	109.3	109.4	105.3	129.5	132.3	128.1	
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Renewable Sources	0.0	1.8	1.8	1.8	2.6	2.6	2.6	3.8	3.8	3.7	
Total	0.0	164.8	156.4	153.0	235.3	222.1	212.4	300.9	287.6	271.1	
Cumulative Total Additions	0.0	175.9	167.4	164.0	247.4	234.1	224.4	313.1	299.8	283.3	
Cumulative Retirements	0.0	58.6	48.4	42.9	85.3	69.0	59.2	104.2	89.0	71.5	
Generation by Fuel Type (billion kilowatthours)											
Coal	1817	2138	2121	2115	2233	2200	2176	2337	2296	2260	
Petroleum	114	53	48	43	51	41	38	43	37	35	
Natural Gas	325	847	796	780	1147	1085	1034	1309	1256	1198	
Nuclear Power	674	555	627	655	405	511	589	326	427	524	
Pumped Power	-2	-1	-1	-1	-1	-1	-1	-1	-1	-1	
Renewable Sources	360	380	381	380	387	386	387	394	393	393	
Total	3288	3973	3973	3973	4222	4222	4222	4408	4409	4409	
Carbon Emissions by Electric Generators (million metric tons)											
Petroleum	24.8	11.4	10.2	9.2	10.7	8.6	7.9	8.9	7.7	7.2	
Natural Gas	47.8	100.4	95.0	92.9	128.9	123.1	117.6	140.6	136.2	131.0	
Coal	477.3	580.7	575.8	573.9	603.0	594.2	587.9	623.7	613.9	605.7	
Total	549.8	692.5	681.0	676.0	742.7	725.9	713.3	773.2	757.8	744.0	
Natural Gas Prices to Electric Generators (1998 dollars per mcf)	2.40	3.23	3.14	3.10	3.41	3.28	3.18	3.54	3.41	3.27	
Coal Prices to Electric Generators (1998 dollars per short ton)	25.64	22.35	22.13	22.12	21.42	21.19	21.26	20.14	20.01	20.05	

Mcf = Thousand cubic feet.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports. Net summer capability has been estimated for nonutility generators for AEO2000. Net summer capability is used to be consistent with electric utility capability estimates. Side cases were run without the fully integrated modeling system, so not all potential feedbacks were captured.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs LNUC00.D100599A, AEO2K.D100199A, and HNUC00.D100599A.

Results from Side Cases

Table F8. Key Results for Electricity Demand Cases

Key Indicators	1998	2005		2010		2020		Annual Growth 1998-2020	
		Reference Case	High Demand	Reference Case	High Demand	Reference Case	High Demand	Reference Case	High Demand
Electricity Sales (billion kilowatthours)	3,236	3,647	3,784	3,909	4,203	4,350	5,002	1.4%	2.0%
Net Imports (billion kilowatthours) ...	30	43	43	26	26	20	20	-1.8%	-1.8%
Electricity Prices (1998 cents per kilowatthour)	6.7	6.1	6.3	6.0	6.5	5.8	6.5	-0.6%	-0.1%
Generation by Fuel (billion kilowatthours)									
Coal	1,869	2,128	2,160	2,173	2,250	2,347	2,746	1.0%	1.8%
Natural Gas	520	717	804	1,001	1,187	1,477	1,685	4.9%	5.5%
Renewables	408	416	416	435	434	453	456	0.5%	0.5%
Nuclear	674	674	674	627	627	427	439	-2.1%	-1.9%
Petroleum/Other	130	81	106	68	115	58	121	-3.6%	-0.2%
Total	3,601	4,016	4,161	4,303	4,613	4,762	5,447	1.3%	1.9%
Generating Capability (gigawatts)									
Coal	305.2	301.6	301.5	301.7	305.8	317.0	366.8	0.2%	0.8%
Combined-Cycle/CombustionTurbine ..	92.6	170.8	172.4	246.5	265.4	356.9	410.1	6.3%	7.0%
Renewables	87.2	91.1	91.1	93.8	93.9	96.7	97.0	0.5%	0.5%
Nuclear Power	97.1	93.4	93.4	84.1	84.1	57.0	58.7	-2.4%	-2.3%
Cogenerators	50.3	55.6	55.6	56.8	56.8	60.2	60.1	0.8%	0.8%
Petroleum/Other	158.0	145.3	145.2	139.6	138.8	130.0	123.6	-0.9%	-1.1%
Total	790.4	857.8	859.2	922.6	944.8	1,017.6	1,116.4	1.2%	1.6%
Cumulative Electric Generator Capability Additions (gigawatts)									
Coal Steam	0.0	0.8	0.8	3.9	7.1	21.1	70.2	N/A	N/A
Combined Cycle/Turbines	0.0	80.0	81.4	157.0	175.2	269.0	320.7	N/A	N/A
Renewable Sources	0.0	3.7	3.7	6.6	6.6	9.7	10.0	N/A	N/A
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A
Other	0.0	0.0	0.0	0.0	0.0	0.1	0.1	N/A	N/A
Total	0.0	84.5	86.0	167.5	188.9	299.8	401.0	N/A	N/A
Energy Production									
Coal (million short tons)	1,128	1,221	1,240	1,242	1,277	1,316	1,473	0.7%	1.2%
Natural Gas (trillion cubic feet)	18.88	19.70	20.46	22.46	23.95	26.40	27.39	1.5%	1.7%
Carbon Emissions by Electric Generators (million metric tons)									
Petroleum	24.8	13.6	19.1	10.2	20.9	7.7	20.8	-5.2%	-0.8%
Natural Gas	47.8	66.6	79.5	95.0	119.5	136.2	157.7	4.9%	5.6%
Coal	477.3	565.3	574.6	575.8	596.2	613.9	692.8	1.2%	1.7%
Total	549.8	645.5	673.3	681.0	736.7	757.8	871.3	1.5%	2.1%
Electric Generator Fossil Fuel Consumption (quadrillion Btu)									
Petroleum	1.23	0.64	0.90	0.48	0.99	0.37	0.99	-5.3%	-1.0%
Coal	19.00	22.13	22.50	22.54	23.36	24.01	27.08	1.1%	1.6%
Natural Gas	3.75	4.62	5.52	6.60	8.30	9.46	10.95	4.3%	5.0%
Prices to Electric Generators (1998 dollars per million Btu)									
Petroleum	2.24	3.23	3.20	3.28	3.25	3.54	3.54	2.1%	2.1%
Coal	1.25	1.11	1.12	1.07	1.11	0.98	1.00	-1.1%	-1.0%
Natural Gas	2.34	2.79	2.97	3.08	3.52	3.33	3.98	1.6%	2.4%

Btu = British thermal unit.

N/A = Not applicable.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports. Other includes non-coal fossil steam, pumped storage, methane, propane and blast furnace gas. Side cases were run without the fully integrated modeling system, so not all potential feedbacks were captured.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs AEO2K.D100199A, and HIEL2K.D100599A.

Results from Side Cases

Table F9. Key Results for Electricity Sector Fossil Technology Cases
(Gigawatts, Unless Otherwise Noted)

Net Summer Capability, and Emissions	1998	2005			2010			2020			
		Low Fossil	Reference Case	High Fossil	Low Fossil	Reference Case	High Fossil	Low Fossil	Reference Case	High Fossil	
Electric Generators											
Capability											
Pulverized Coal	304.7	300.5	300.6	301.3	299.4	298.6	303.1	309.8	300.5	313.5	
Coal Gasification Combined-Cycle	0.5	0.5	1.0	3.1	0.5	3.0	9.5	0.5	16.5	17.9	
Conventional Natural Gas Combined-Cycle ..	19.5	47.9	40.8	44.4	80.8	55.3	48.3	157.2	68.4	48.7	
Advanced Natural Gas Combined-Cycle ...	0.0	8.1	15.0	11.3	11.2	37.8	43.4	11.9	86.3	142.7	
Conventional Combustion Turbine	73.2	116.6	111.7	108.0	155.9	140.4	135.5	192.2	163.5	148.0	
Advanced Combustion Turbine	0.0	2.3	3.3	5.4	2.9	13.1	14.9	3.0	38.8	37.0	
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	
Nuclear	97.1	93.4	93.4	93.4	84.1	84.1	83.0	57.0	57.0	49.5	
Oil and Gas Steam	138.2	123.1	125.3	123.5	118.9	119.5	117.1	110.3	109.9	87.2	
Renewable Sources	107.0	111.1	111.1	111.1	113.8	113.9	113.7	117.3	116.7	116.4	
Total	740.2	803.7	802.2	801.5	867.4	865.7	868.6	959.2	957.5	961.0	
Cumulative Planned Additions											
Pulverized Coal	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Coal Gasification Combined-Cycle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Conventional Natural Gas Combined-Cycle ..	0.0	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	
Advanced Natural Gas Combined-Cycle ...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Conventional Combustion Turbine	0.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Advanced Combustion Turbine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Oil and Gas Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Renewable Sources	0.0	2.7	2.7	2.7	4.8	4.8	4.8	5.9	5.9	5.9	
Total	0.0	8.9	8.9	8.9	11.1	11.1	11.1	12.2	12.2	12.2	
Cumulative Unplanned Additions											
Pulverized Coal	0.0	0.3	0.3	1.0	1.5	1.3	5.4	13.9	5.0	19.2	
Coal Gasification Combined-Cycle	0.0	0.0	0.5	2.5	0.0	2.5	9.0	0.0	16.0	17.4	
Conventional Natural Gas Combined-Cycle ..	0.0	23.7	16.6	20.3	56.7	31.2	24.2	133.1	44.2	24.6	
Advanced Natural Gas Combined-Cycle ...	0.0	8.1	15.0	11.3	11.2	37.8	43.4	11.9	86.3	142.7	
Conventional Combustion Turbine	0.0	43.3	38.8	35.0	84.1	68.8	63.8	121.0	93.6	80.0	
Advanced Combustion Turbine	0.0	2.3	3.3	5.4	2.9	13.1	14.9	3.0	38.8	37.0	
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Oil and Gas Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Renewable Sources	0.0	1.1	1.1	1.1	1.7	1.8	1.7	4.3	3.8	3.5	
Total	0.0	78.8	75.6	76.6	158.1	156.4	162.3	287.2	287.6	324.4	
Cumulative Total Additions	0.0	87.8	84.5	85.5	169.2	167.4	173.4	299.4	299.8	336.6	
Cumulative Retirements	0.0	31.0	28.9	30.9	48.7	48.4	51.7	87.2	89.0	122.6	
Carbon Emissions by Electric Generators											
(million metric tons)											
Petroleum	24.8	13.0	13.6	12.4	10.9	10.2	7.7	12.1	7.7	3.5	
Natural Gas	47.8	69.0	66.6	65.7	101.1	95.0	88.0	145.3	136.2	120.5	
Coal	477.3	562.1	565.3	566.6	571.4	575.8	583.6	612.7	613.9	608.0	
Total	549.8	644.1	645.5	644.7	683.4	681.0	679.3	770.1	757.8	732.0	
Cogenerators											
Capability											
Coal	8.8	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	
Petroleum	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	
Natural Gas	31.8	35.8	35.7	35.8	36.4	36.4	36.4	38.4	38.4	38.4	
Other Gaseous Fuels	0.4	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.0	1.0	
Renewables	6.6	7.4	7.4	7.4	7.9	7.9	7.9	9.0	9.0	9.0	
Other	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	
Total	50.3	55.6	55.6	55.6	56.8	56.8	56.9	60.2	60.2	60.2	
Cumulative Additions	0.0	5.3	5.3	5.3	6.6	6.6	6.6	9.9	9.9	9.9	
Other Generators¹											
Capability	1.1	1.2	1.2	1.2	1.4	1.4	1.4	1.8	1.8	1.8	
Cumulative Additions	0.0	0.1	0.1	0.1	0.3	0.3	0.3	0.7	0.7	0.7	

¹ Includes small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

Notes: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports. Net summer capability has been estimated for nonutility generators for AEO2000. Net summer capacity is used to be consistent with electric utility capacity estimates.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs LOTECEL.D100799A, AEO2K.D100199A, and HITECEL.D100799A.

Results from Side Cases

Table F10. Key Results for Electricity Competitive Pricing Cases

Key Indicators	1998	2005			2010			2020		
		Low Gas Price	Mid Gas Price	High Gas Price	Low Gas Price	Mid Gas Price	High Gas Price	Low Gas Price	Mid Gas Price	High Gas Price
Electricity Sales (billion kilowatthours)										
3,236	3,665	3,663	3,660	3,935	3,919	3,900	4,380	4,321	4,247	
Electricity Prices (1998 cents per kilowatthour)										
6.7	5.9	5.9	6.0	5.7	5.9	6.1	5.5	6.0	6.8	
Generation by Fuel (billion kilowatthours)										
Coal	1,869	2,129	2,136	2,138	2,155	2,176	2,191	2,227	2,315	2,385
Natural Gas	520	740	725	714	1,056	1,007	954	1,644	1,470	1,209
Oil	121	63	69	74	44	56	73	29	53	160
Nuclear	674	674	674	674	627	627	627	428	427	433
Conventional Hydropower ..	324	305	305	305	305	305	305	304	304	304
Geothermal	14	16	16	16	17	17	17	23	24	24
Municipal Solid Waste	21	29	29	29	34	34	34	39	39	39
Wood and Other Biomass ..	44	57	57	57	66	64	66	69	70	72
Solar Thermal	1	1	1	1	1	1	1	1	1	1
Solar Photovoltaic	0	0	0	0	1	1	1	2	2	2
Wind	3	8	8	8	11	11	11	12	12	12
Other ¹	9	13	13	13	13	13	13	15	15	14
Total	3,601	4,036	4,033	4,030	4,331	4,313	4,294	4,794	4,731	4,655
Generating Capability (gigawatts)										
Coal	314	310	310	310	310	310	311	316	321	327
Natural Gas and Oil	264	332	332	332	393	390	387	492	476	457
Nuclear	97	93	93	93	84	84	84	57	57	58
Conventional Hydropower ..	79	79	79	79	79	79	79	79	79	79
Geothermal	3	3	3	3	3	3	3	4	4	4
Municipal Solid Waste	3	4	4	4	5	5	5	6	6	6
Wood and Other Biomass ..	8	9	9	9	10	10	10	11	11	12
Solar Thermal	0	0	0	0	0	0	0	0	0	0
Solar Photovoltaic	0	0	0	0	1	1	1	1	1	2
Wind	2	4	4	4	5	5	5	5	5	6
Other ¹	22	22	22	22	22	22	22	22	22	22
Total	792	857	857	857	913	910	908	994	984	972
Energy Production										
Coal (million short tons)	1,128	1,223	1,226	1,228	1,234	1,244	1,250	1,259	1,304	1,346
Natural Gas (trillion cubic feet)	18.9	20.0	19.8	19.5	23.2	22.6	21.8	28.3	26.5	24.7
Carbon Emissions by Electric Generators (million metric tons)										
Petroleum	24.8	12.3	13.6	14.8	8.0	10.6	14.4	4.6	9.7	29.2
Natural Gas	47.8	69.8	67.6	66.0	102.8	96.4	89.4	159.5	138.1	107.7
Coal	477.3	565.6	567.6	568.1	571.3	577.0	581.1	586.6	608.5	625.4
Total	549.8	647.7	648.8	648.9	682.1	684.1	685.0	750.8	756.3	762.2
Fuel Prices to Electric Generators (1998 dollars per million Btu)										
Coal	1.25	1.11	1.11	1.11	1.07	1.08	1.08	0.97	0.99	1.02
Natural Gas	2.34	2.69	2.79	2.90	2.80	3.06	3.33	2.72	3.34	4.27

¹Includes pumped storage and for cogenerators, refineries and still gas, and hydrogen, sulfur, batteries, chemicals, fish oil, and spent sulfite liquor.

Btu = British thermal unit.

N/A = Not applicable.

Note: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs LMRG.D100899B, COMP.D100299A, and HMRG.D100899A.

Results from Side Cases

Table F11. Key Results for Renewable Portfolio Standard Cases

Key Indicators	1998	2010				2020			
		Reference	RPS Cap and Sunset	RPS Cap No Sunset	RPS No Cap No Sunset	Reference	RPS Cap and Sunset	RPS Cap No Sunset	RPS No Cap No Sunset
Electricity Sales (billion kilowatthours)	3,236	3,909	3,907	3,905	3,883	4,350	4,348	4,341	4,327
Electricity Prices (1998 cents per kilowatthour)	6.67	5.97	5.99	6.00	6.16	5.82	5.83	5.86	5.90
National Electricity Bill (billion 1998 dollars)	215.9	233.4	233.9	234.3	239.2	253.2	253.4	254.4	255.3
Change in Bill from Reference (billion 1998 dollars)	N/A	N/A	0.5	0.9	5.8	N/A	0.2	1.3	2.1
Generation by Fuel¹ (billion kilowatthours)									
Coal	1,869	2,173	2,110	2,124	2,101	2,347	2,329	2,294	2,238
Natural Gas	520	1,001	984	967	890	1,477	1,474	1,454	1,389
Oil	121	54	51	53	39	44	46	44	33
Nuclear	674	627	627	627	627	427	427	427	428
Conventional Hydropower	317	300	300	300	300	299	299	299	299
Geothermal	14	17	24	28	35	25	41	53	65
Municipal Solid Waste	21	34	34	34	34	39	39	39	39
Wood and Other Biomass	44	65	95	92	151	70	69	91	131
Solar Thermal	1	1	1	1	1	1	1	1	1
Solar Photovoltaic	0	0	0	0	0	1	1	1	1
Wind	3	11	11	11	80	12	12	12	96
Other ²	9	13	13	13	13	15	15	15	15
Total	3,594	4,298	4,251	4,252	4,271	4,757	4,754	4,731	4,735
RPS Qualifying Renewable Generation	75	116	152	154	287	133	149	183	318
Generating Capacity (gigawatts)¹									
Coal	314	311	311	311	308	326	324	323	312
Natural Gas and Oil	264	404	404	402	384	507	507	505	495
Nuclear	97	84	84	84	84	57	57	57	57
Conventional Hydropower	78	78	78	78	78	78	78	78	78
Geothermal	3	3	4	4	5	4	6	7	9
Municipal Solid Waste	3	5	5	5	5	6	6	6	6
Wood and Other Biomass	8	10	10	10	15	11	11	11	21
Solar Thermal	0	0	0	0	0	0	0	0	0
Solar Photovoltaic	0	0	0	0	0	1	1	1	1
Wind	2	5	5	5	31	5	5	6	36
Other ²	22	22	22	22	22	22	22	22	22
Total	790	923	924	923	933	1,018	1,018	1,017	1,037
Energy Production									
Coal (million short tons)	1,128	1,242	1,214	1,222	1,212	1,316	1,308	1,291	1,273
Natural Gas (trillion cubic feet)	18.9	22.5	22.3	22.2	21.9	26.4	26.5	26.4	26.3
Total Carbon Emissions (million metric tons)	1,485	1,787	1,768	1,770	1,753	1,979	1,978	1,966	1,947
Carbon Change from Reference (million metric tons)	N/A	N/A	-19	-17	-34	N/A	-1	-13	-32
Fuel Prices to Electric Generators (1998 dollars per million Btu)									
Coal	1.25	1.07	1.07	1.05	1.06	0.98	0.98	0.98	0.99
Natural Gas	2.34	3.08	3.04	3.02	2.85	3.33	3.30	3.28	3.11

¹Includes grid-connected utilities and nonutilities and cogenerators, but does not include small on-site generating systems in the residential, commercial, and industrial sectors.

²Includes pumped storage hydroelectric and, for cogenerators, also includes refinery and still gas, and hydrogen, sulfur, batteries, chemicals, fish oil, and spent sulfite liquor.

Btu = British thermal unit.

N/A = Not applicable.

RPS = Renewable portfolio standard.

Note: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs AEO2K.D100199A, RPS2KSUN.D100699A, RPS2KCAP.D100699A, and RPS2KFUL.D100699B.

Results from Side Cases

Table F12. Key Results for High Renewable Energy Case

Capacity, Generation, and Emissions	1998	2010		2020		
		Reference	High Renewables	Reference	High Renewables	
Renewable Capability (Gigawatts)						
Net Summer Capability						
Electric Generators						
Conventional Hydropower	77.71	78.33	78.33	78.33	78.33	
Geothermal	2.89	2.98	4.01	3.75	5.67	
Municipal Solid Waste	2.49	4.47	4.98	5.17	5.88	
Wood and Other Biomass	1.76	2.41	2.41	2.93	3.54	
Solar Thermal	0.33	0.40	0.40	0.48	0.48	
Solar Photovoltaic	0.01	0.19	0.19	0.52	0.52	
Wind	1.99	5.07	5.57	5.49	17.99	
Total	87.19	93.84	95.88	96.67	112.40	
Cogenerators						
Municipal Solid Waste	0.52	0.52	0.52	0.52	0.52	
Wood and Other Biomass	6.04	7.37	7.37	8.46	8.46	
Total	6.56	7.89	7.89	8.98	8.98	
Other Generators¹						
Conventional Hydropower	1.10	1.10	1.10	1.10	1.10	
Geothermal	0.00	0.00	0.00	0.00	0.00	
Solar Photovoltaic	0.01	0.35	0.35	0.74	0.74	
Total	1.10	1.44	1.44	1.84	1.84	
Generation (billion kilowatthours)						
Electric Generators						
Coal	1817	2121	2103	2296	2273	
Petroleum	114	48	43	37	32	
Natural Gas	325	796	805	1256	1214	
Total Fossil²	2256	2966	2952	3589	3518	
Conventional Hydropower	316.79	300.50	300.50	299.35	299.35	
Geothermal	14.29	17.35	25.47	24.70	39.84	
Municipal Solid Waste	17.78	30.63	34.11	35.71	40.54	
Wood and Other Biomass	6.86	20.35	20.43	18.80	20.50	
Solar Thermal	0.89	1.09	1.09	1.35	1.35	
Solar Photovoltaic	0.00	0.46	0.46	1.30	1.30	
Wind	3.39	10.95	12.83	12.09	61.70	
Total Renewable	360.00	381.33	394.88	393.32	464.58	
Cogenerators						
Coal	52	51	51	51	51	
Petroleum	8	6	6	7	7	
Natural Gas	195	205	205	220	220	
Total Fossil²	255	262	262	278	278	
Municipal Solid Waste	3.00	3.13	3.13	3.13	3.13	
Wood and Other Biomass	37.34	45.06	45.06	51.02	51.02	
Total Renewables	40.34	48.19	48.19	54.15	54.15	
Other Generators¹						
Conventional Hydropower	7.25	4.85	4.85	4.83	4.83	
Geothermal	0.00	0.07	0.07	0.07	0.07	
Solar Photovoltaic	0.01	0.46	0.46	0.50	0.50	
Total	7.26	5.38	5.38	5.40	5.40	
Carbon Emissions						
(million metric tons)						
Electric Generators						
Petroleum	24.8	10.2	9.1	7.7	6.6	
Natural Gas	47.8	95.0	96.2	136.2	130.9	
Coal	477.3	575.8	570.6	613.9	608.6	
Total	549.8	681.0	675.9	757.8	746.1	

¹Includes small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

²Total of items presented.

Note: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs AEO2K.D100199A and HIRENEW.D100799A.

Results from Side Cases

Table F13. Key Results for Oil and Gas Technological Progress Cases
 (Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	1998	Projections										
		2005			2010			2020				
		Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress		
Total Energy Supply and Disposition												
Production												
Crude Oil and Lease Condensate . . .	13.23	11.00	11.35	11.70	10.28	10.96	11.76	9.86	11.13	12.53		
Natural Gas Plant Liquids	2.49	2.54	2.57	2.59	2.83	2.90	2.99	3.14	3.36	3.58		
Dry Natural Gas	19.40	20.02	20.25	20.41	22.47	23.09	23.79	25.29	27.13	28.92		
Coal	23.89	25.84	25.79	25.76	26.28	26.18	25.93	28.14	27.36	26.28		
Nuclear Power	7.19	7.20	7.20	7.20	6.70	6.70	6.70	4.62	4.56	4.57		
Renewable Energy	6.67	7.07	7.07	7.07	7.40	7.39	7.39	7.99	7.98	7.95		
Other	0.57	0.62	0.62	0.62	0.59	0.59	0.61	0.62	0.66	0.66		
Total	73.46	74.29	74.85	75.34	76.54	77.81	79.16	79.67	82.18	84.49		
Imports												
Crude Oil ¹	18.90	23.83	23.49	23.15	25.53	24.91	24.12	26.52	25.22	23.90		
Petroleum Products	3.99	5.43	5.37	5.30	7.01	6.80	6.63	11.96	10.87	10.45		
Natural Gas	3.37	4.55	4.52	4.55	4.93	4.91	4.95	4.41	5.61	5.92		
Other Imports	0.59	0.99	0.99	0.99	0.89	0.89	0.89	0.97	0.97	0.97		
Total	26.85	34.81	34.38	33.99	38.36	37.50	36.60	43.87	42.67	41.23		
Exports												
Petroleum	1.94	1.92	1.94	1.96	1.90	1.97	2.01	1.84	1.93	2.05		
Natural Gas	0.17	0.24	0.24	0.24	0.29	0.29	0.29	0.36	0.36	0.36		
Coal	2.05	1.59	1.59	1.59	1.63	1.63	1.60	1.46	1.46	1.46		
Total	4.16	3.75	3.76	3.80	3.83	3.89	3.90	3.67	3.76	3.87		
Discrepancy	1.27	0.20	0.18	0.18	0.17	0.16	0.15	0.18	0.14	0.06		
Consumption												
Petroleum Products	37.21	41.25	41.21	41.15	44.10	43.98	43.90	49.98	49.05	48.88		
Natural Gas	21.99	24.37	24.57	24.76	27.09	27.69	28.43	29.34	32.38	34.47		
Coal	21.50	24.75	24.72	24.67	25.23	25.12	24.91	27.39	26.60	25.54		
Nuclear Power	7.19	7.20	7.20	7.20	6.70	6.70	6.70	4.62	4.56	4.57		
Renewable Energy	6.67	7.07	7.08	7.07	7.41	7.41	7.40	8.01	7.99	7.97		
Other	0.32	0.50	0.50	0.50	0.36	0.36	0.36	0.36	0.36	0.36		
Total	94.88	105.15	105.28	105.35	110.90	111.26	111.70	119.69	120.95	121.78		
Net Imports - Petroleum	20.95	27.35	26.92	26.49	30.63	29.73	28.74	36.64	34.15	32.29		
Carbon Emissions by Primary Fuel (million metric tons)												
Petroleum	636.7	700.8	699.9	698.2	750.1	747.3	745.4	853.2	833.3	829.3		
Natural Gas	309.8	348.6	351.5	354.2	387.7	396.3	407.0	419.8	463.7	493.7		
Coal	538.9	631.8	630.9	629.6	644.1	641.2	635.8	699.9	679.5	652.3		
Other	0.0	1.1	1.1	1.1	1.7	1.8	1.7	2.6	2.7	2.6		
Total	1,485.4	1,682.4	1,683.4	1,683.2	1,783.6	1,786.6	1,789.9	1,975.6	1,979.2	1,978.0		
Prices (1998 dollars per unit)												
World Oil Price (dollars per barrel) . . .	12.10	20.49	20.49	20.49	21.00	21.00	21.00	22.04	22.04	22.04		
Gas Wellhead Price (dollars per Mcf) . . .	1.96	2.44	2.34	2.25	2.86	2.60	2.33	3.74	2.81	2.23		
Coal Minemouth Price (dollars per ton) . . .	17.51	14.69	14.71	14.79	13.98	13.84	13.78	12.57	12.54	12.55		
Average Electricity Price (cents per Kwh) . . .	6.7	6.1	6.1	6.1	6.1	6.0	5.9	6.3	5.8	5.5		
Natural Gas Supply and Disposition												
Production (trillion cubic feet)												
Dry Gas Production	18.88	19.47	19.70	19.86	21.86	22.46	23.14	24.60	26.40	28.13		
Supplemental Natural Gas	0.12	0.11	0.11	0.11	0.06	0.06	0.06	0.06	0.06	0.06		
Net Imports (trillion cubic feet)	3.13	4.22	4.19	4.22	4.53	4.52	4.56	3.96	5.14	5.44		
Total Supply (trillion cubic feet)	22.13	23.81	24.00	24.19	26.45	27.03	27.75	28.63	31.59	33.63		

Results from Side Cases

Table F13. Key Results for Oil and Gas Technological Progress Cases (Continued)
 (Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	1998	Projections							
		2005				2010			2020
		Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference
Consumption by Sector (trillion cubic feet)									
Residential	4.48	5.05	5.07	5.10	5.24	5.30	5.37	5.44	5.69
Commercial	3.03	3.32	3.34	3.35	3.43	3.48	3.54	3.44	3.65
Industrial	8.23	8.77	8.81	8.84	9.11	9.22	9.34	9.57	9.99
Electric Generators	3.67	4.42	4.53	4.62	6.15	6.45	6.88	7.33	9.26
Lease and Plant Fuel	1.24	1.25	1.26	1.27	1.40	1.43	1.46	1.58	1.67
Pipeline Fuel	0.73	0.74	0.75	0.75	0.82	0.84	0.87	0.88	0.96
Transportation	0.02	0.15	0.15	0.15	0.22	0.22	0.23	0.31	0.32
Total	21.39	23.71	23.91	24.09	26.37	26.95	27.68	28.56	31.53
Discrepancy (trillion cubic feet)	0.73	0.09	0.09	0.09	0.08	0.08	0.08	0.06	0.05
Crude Oil Supply									
Lower 48 Average Wellhead Price (1998 dollars per barrel)	11.60	20.09	20.08	19.99	20.67	20.62	20.54	21.33	21.27
Production (million barrels per day)									
U.S. Total	6.25	5.20	5.36	5.53	4.85	5.18	5.55	4.66	5.26
Lower 48 Onshore	3.60	2.96	3.01	3.07	2.89	3.00	3.14	2.96	3.28
Conventional	2.87	2.39	2.42	2.45	2.33	2.39	2.46	2.38	2.57
Enhanced Oil Recovery	0.73	0.57	0.59	0.61	0.56	0.61	0.68	0.58	0.71
Lower 48 Offshore	1.47	1.31	1.38	1.47	1.22	1.36	1.54	1.28	1.47
Alaska	1.18	0.93	0.96	1.00	0.75	0.81	0.88	0.42	0.51
Lower 48 End of Year Reserves (billion barrels)									
18.05	13.73	14.15	14.57	12.65	13.38	14.34	11.85	13.21	14.61
Natural Gas Supply									
Lower 48 Average Wellhead Price (1998 dollars per Mcf)	1.96	2.44	2.34	2.25	2.86	2.60	2.33	3.74	2.81
Production (trillion cubic feet)									
U.S. Total	18.88	19.47	19.70	19.86	21.86	22.46	23.14	24.61	26.40
Lower 48 Onshore	12.91	13.23	13.22	13.20	16.16	16.37	16.59	18.02	19.47
Associated-Dissolved	1.72	1.32	1.34	1.35	1.24	1.25	1.27	1.20	1.25
Non-Associated	11.19	11.90	11.88	11.85	14.92	15.12	15.33	16.82	18.22
Conventional	6.68	7.13	6.91	6.75	9.79	9.81	9.83	10.41	10.75
Unconventional	4.51	4.77	4.98	5.09	5.14	5.30	5.50	6.41	7.47
Lower 48 Offshore	5.54	5.79	6.02	6.20	5.21	5.60	6.06	6.04	6.39
Associated-Dissolved	0.89	0.88	0.89	0.91	0.85	0.88	0.92	0.86	0.91
Non-Associated	4.65	4.91	5.12	5.29	4.36	4.72	5.14	5.18	5.48
Alaska	0.44	0.46	0.46	0.46	0.49	0.49	0.49	0.54	0.54

Results from Side Cases

Table F13. Key Results for Oil and Gas Technological Progress Cases (Continued)
 (Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	1998	Projections									
		2005			2010			2020			
		Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress	Slow Technology Progress	Reference	Rapid Technology Progress	
U.S. End of Year Reserves (trillion cubic feet)	155.00	149.23	155.85	162.06	161.92	173.45	186.66	159.61	191.37	218.56	
Supplemental Gas Supplies (trillion cubic feet)	0.12	0.11	0.11	0.11	0.05	0.05	0.05	0.05	0.05	0.05	
Total Lower 48 Wells Completed (thousands)	23.96	25.75	24.92	24.85	34.54	32.86	31.35	42.26	38.66	36.57	
Electric Generator Capability (gigawatts)	740.15	802.20	802.24	802.08	865.06	865.75	866.46	949.42	957.47	966.56	

Kwh = Kilowatthour.

Btu = British thermal unit.

Mcf = Thousand cubic feet.

Note: Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports.

Sources: Energy Information Administration, AEO2000 National Energy Modeling System runs OGLTEC.D100799A, AEO2K.D100199A, and OGHTEC.D100799C.

Table F14. Key Results for Reduced Sulfur Gasoline Case

Changes in Gasoline Sulfur and Prices	2004	2007	2010
Changes in Gasoline Volumes by Sulfur Content (thousand barrels per day)			
340 ppm Average	-6,176	-6,506	-6,820
150 ppm	-3,084	-3,233	-3,359
80 ppm	6,176		
30 ppm	3,084	9,739	10,179
Changes in Cumulative Investment (billion 1998 dollars)			
	2.19	5.65	7.74
Changes in National Average Gasoline Prices (1998 cents per gallon)			
	2.3	3.9	3.5

PPM = Parts per million.

Note: Side cases were run without the fully integrated modeling system, so not all potential feedbacks are captured.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs 30PPMX.D100799B and RFDF10.D100699B.

Results from Side Cases

Table F15. Key Results for MTBE Reduction Case

Changes in Gasoline Blending, Imports, and Prices	2003	2004	2005
Changes in MTBE Blended with Gasoline (thousand barrels per day) .	-136	-140	-138
Changes in Ethanol Blended with Gasoline (thousand barrels per day)	27	20	21
Changes in Imports of Gasoline and Blending Components (thousand barrels per day)	135	123	141
Changes in Cumulative Investment (billion 1998 dollars).....	2.43	2.11	1.71
Changes in Gasoline Prices (1998 cents per gallon)			
National Average Gasoline Price	1.3	1.4	1.4
National Average Reformulated Gasoline Price	2.8	2.8	1.8

MTBE = Methyl tertiary butyl ether.

Note: Side cases were run without the fully integrated modeling system, so not all potential feedbacks are captured.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs TRG30.D100799D and RFDFT10.D100699B.

Table F16. Key Results for Coal Mining Cost Cases

Prices, Productivity, Wages, and Emissions	1998	2005			2010			2020		
		Low Cost	Reference Case	High Cost	Low Cost	Reference Case	High Cost	Low Cost	Reference Case	High Cost
Minemouth Price (1998 dollars per short ton)	17.51	13.96	14.71	15.90	12.60	13.84	15.81	10.56	12.54	15.05
Delivered Price to Electric Generators (1998 dollars per million Btu)	1.25	1.06	1.11	1.16	1.00	1.07	1.15	0.85	0.98	1.13
Labor Productivity (short tons per miner per hour)	6.47	8.85	8.19	7.31	10.77	9.17	7.55	14.01	10.61	7.86
Labor Productivity (average annual growth from 1998)	N/A	4.6	3.4	1.8	4.3	2.9	1.3	3.6	2.3	0.9
Average Coal Miner Wage (1998 dollars per hour)	19.15	18.49	19.15	19.83	18.03	19.15	20.33	17.15	19.15	21.37
Average Coal Miner Wage (average annual growth from 1998)	N/A	-0.5	0.0	0.5	-0.5	0.0	0.5	-0.5	0.0	0.5
Carbon Emissions by Electric Generators (million metric tons)										
Petroleum	24.8	13.1	13.6	13.5	9.8	10.2	9.9	6.9	7.7	9.0
Natural Gas	47.8	66.3	66.6	67.4	94.5	95.0	96.5	134.0	136.2	138.8
Coal	477.3	566.8	565.3	564.0	577.7	575.8	572.7	618.8	613.9	608.0
Total	549.8	646.2	645.5	644.9	681.9	681.0	679.1	759.7	757.8	755.8
Electric Generator Capability (gigawatts)	740.2	802.1	802.2	802.0	866.0	865.7	866.5	958.4	957.5	960.4

Btu = British thermal unit.

N/A = Not applicable.

Note: Side cases were run without the fully integrated modeling system, so not all potential feedbacks are captured. Totals may not equal sum of components due to independent rounding. Data for 1998 are model results and may differ slightly from official EIA data reports.

Source: Energy Information Administration, AEO2000 National Energy Modeling System runs LLCST2K.D100599C, AEOK.D100199A, and HLCST2K.D100599A.